

Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

Claim 1. (Cancelled)

C Claim 2. (Currently Amended) The ~~self-pulsating~~ semiconductor laser device according to claim ~~±~~ 19, wherein said saturable absorbing layer comprises ~~N as a group V element~~ at least one of As and P.

112 Claim 3. (Currently Amended) The ~~self-pulsating~~ semiconductor laser device according to claim ~~±~~ 19, wherein said active layer, first and second cladding layers and saturable absorbing layer comprise AlGaInP alloy materials.

— Claim 4. (Currently Amended) The ~~self-pulsating~~ semiconductor laser device according to claim ~~±~~ 19, wherein said saturable absorbing layer comprises an AlGaInNP alloy material.

— Claim 5. (Currently Amended) The ~~self-pulsating~~ semiconductor laser device according to claim ~~±~~ 19, wherein said cladding layer comprises AlGaInP and wherein an AlGaInP intermediate layer is interposed between said cladding layer and said saturable absorbing layer, said intermediate layer containing less Al than said cladding layer and no ~~N~~ nitrogen.

Claim 6. (Currently Amended) The ~~self-pulsating~~ semiconductor laser device according to claim ~~±~~ 19, wherein said self-pulsating

III-V near
arsenide
Dkt. 2271/60102

semiconductor laser device is designed for use in an optical disk system.

Claims 7-12. (Withdrawn)

Claim 13. (Currently Amended) A semiconductor device comprising:
a semiconductor substrate of a first conductivity type;
a first cladding layer of said first conductivity type formed on said semiconductor substrate;

an active layer formed on said first cladding layer;

a second cladding layer of a second conductivity type formed on said active layer; and

a saturable absorbing layer formed on at least portions of at least one of said first cladding layer and said second cladding layer,

wherein said saturable absorbing layer is a mixed crystal of Nitrogen (N) with another group-V element and is formed to have a band gap energy either approximately the same as, or slightly smaller than, said active layer.

Claim 14. (Previously Amended) The semiconductor device according to claim 13, wherein said ~~another group-V element~~ saturable absorbing layer comprises at least one of As and P.

Claim 15. (Original) The semiconductor device according to claim 13, wherein said active layer, first and second cladding layers and saturable absorbing layer comprise AlGaInP alloy materials.

Claim 16. (Original) The semiconductor device according to claim

13, wherein said saturable absorbing layer comprises an AlGaInNP alloy material.

— Claim 17. (Currently Amended) The semiconductor device according to claim 13, wherein said cladding layer comprises AlGaInP and wherein an AlGaInP intermediate layer is interposed between said cladding layer and said saturable absorbing layer, said intermediate layer containing less Al than said cladding layer and no ~~N~~ nitrogen.

C Claim 18. (Previously Amended) The semiconductor device according to claim 13, wherein said semiconductor device comprises a self-pulsating semiconductor laser device.

Claim 19. (Currently Amended) A semiconductor device comprising:
a semiconductor substrate of a first conductivity type;
a first cladding layer of said first conductivity type formed on said semiconductor substrate;
an active layer formed on said first cladding layer;
a second cladding layer of a second conductivity type formed on said active layer; and
a saturable absorbing layer formed on at least portions of at least one of said first cladding layer and said second cladding layer, wherein said saturable absorbing layer is formed to have a band gap energy either approximately the same as, or slightly smaller than, said active layer, and also to be doped with ~~N~~ nitrogen (N) in an amount sufficient to form a localized level; and
said saturable absorbing layer includes a III-V alloy material.

Claim 20. (Currently Amended) A semiconductor device comprising:
a semiconductor substrate of a first conductivity type;
a first cladding layer of said first conductivity type formed on said semiconductor substrate;
an active layer formed on said first cladding layer;
a second cladding layer of a second conductivity type formed on said active layer; and
a saturable absorbing layer formed on at least portions of at least one of said first cladding layer and said second cladding layer,
wherein said saturable absorbing layer is a mixed crystal of N nitrogen (N) with another group-V element, and a such that an N content is in a specific range corresponding to a band gap narrower than a band gap of a of said mixed crystal that does not include N of nitrogen (N) with another group-V element is reduced by adding nitrogen; and
said saturable absorbing layer is formed to have a band gap energy either approximately the same as, or slightly smaller than, said active layer.

Claim 21. (Currently Amended) The semiconductor device according to claim ~~1~~ 19, wherein ~~an intermediate layer is interposed between said saturable absorbing layer and said one of said first cladding layer and said second cladding layer,~~
said first cladding layer, and said second cladding layer, ~~and~~ said ~~intermediate layer~~ comprise one or more group-V elements selected from a group consisting of As, P, and Sb; and
said first cladding layer, and said second cladding layer, ~~and~~ said ~~intermediate layer~~ do not substantially include N nitrogen.

Claim 22. (Currently Amended) The semiconductor device according to claim 13, wherein ~~an intermediate layer is interposed between said saturable absorbing layer and said one of said first cladding layer and said second cladding layer,~~

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end said first cladding layer, and said second cladding layer, ~~and~~ said ~~intermediate layer~~ comprise one or more group-V elements selected from a group consisting of As, P, and Sb; and

 said first cladding layer, and said second cladding layer, ~~and~~ said ~~intermediate layer~~ do not substantially include N nitrogen.
